

## CLAIMS

1. Operating mode for fluorescent tubes, such luminaries including one or more standard fluorescent tubes that contain mercury vapor gas and heating filament cathodes at ends, a fixture that integrates proper holding and connection devices for fluorescent tubes and one ballast for driving the fluorescent tubes. Ballast operating mode differs from existing systems by the fact that it uses voltage pulses applied to the electrodes for exciting the fluorescent gas, such pulses consisting of non periodic voltage levels separated by variable duration dead times.
2. Operating mode according to claim 1, characterized in that the ballast produces alternative voltage pulses.
3. Operating mode according to claim 1, characterized in that the ballast monitors the voltage signals as well as dead times by means of a programmed algorithm.
4. Operating mode according to claim 1, characterized in that the ballast monitors each dead times duration according to real time samplings of the current crossing gas in the fluorescent tubes.
5. Operating mode according to claim 1, characterized in that the special couplings of connexion/fixation of the fluorescent tubes are activated by the ballast in order to short cut the filaments of the electrodes of the fluorescent tubes in such a way to cancel the current through them and to thus avoid the losses in voltage.
6. Operating mode according to claim 1, characterized in that conduction through gas of the fluorescent tubes is ignited by the temporary connection of a capacitor making it possible to increase the tension between the electrodes of each fluorescent tube and that this capacitor is disconnected as soon as conduction is obtained.
7. Operating mode according to claim 6, characterized in that the ballast modifies the current level crossing the gas in such way that the current crossing the capacitor is minimized before the disconnection of the capacitor.
8. Operating mode according to claim 1, characterized in that the ballast communicates with a remote central control unit through a wired or wireless link for performance monitoring and remote failure detection.
9. Luminary for fluorescent tubes, such luminary including one or more standard fluorescent tubes that contain mercury vapor gas and heating filament cathodes at ends, a fixture that integrates proper holding and connection devices for fluorescent tubes and one ballast for driving the fluorescent tubes. Ballast operating mode differs from existing systems by the fact that it uses voltage pulses applied to the electrodes for exciting the fluorescent gas, such pulses consisting of non periodic voltage levels separated by variable duration dead times.

10. Luminary for fluorescent tubes according to claim 9, characterized in that the ballast is adapted to produce voltage pulses in an alternative form.

11. Luminary for fluorescent tubes according to claim 9, characterized in that the ballast produces the voltage signals as well as dead time by means of programmed algorithms.

12. Luminary for fluorescent tubes according to claim 9, characterized in that the ballast is adapted to monitor each dead time duration according to real time samplings of the current through the fluorescent tubes gas.

13. Luminary for fluorescent tubes according to claim 9, characterized in that the holdings of connexion/fixings of the fluorescent tubes comprise special couplings being able to be activated by the ballast to short cut the electrodes filament of the fluorescent tubes in order to cancel the current.

14. Luminary for fluorescent tubes according to claim 9, characterized in that a capacitor can be connected in order to increase the voltage between the electrodes of each fluorescent tube in order to start conduction through gas, such capacitor being disconnected as soon as conduction is obtained.

15. Luminary for fluorescent tubes according to the claim 14, characterized in that the ballast is adapted to modify the current crossing of the fluorescent tube gas when conduction is obtained, in such a way that the current in the capacitor is reduced at its lowest level before the disconnection of such capacitor.

16. Luminary for fluorescent tubes according to claim 9, characterized in that the ballast has a wire or wireless connection enabling him to communicate with a remote control unit for performance monitoring and remote failure detection.

17. Luminary for fluorescent tubes according to claim 9, characterized in that the ballast includes two parts; the first being a standard ballast functioning simply with the main sector and the second being a specifically assembled part to work with the non periodic pulses characterizing the invention of this patent.

18. Signal of supply voltage of the fluorescent tubes in normal operating conditions made of pulses and characterized in that this signal includes non periodic pulses and variable dead times durations.

19. Signal of supply voltage according to claim 18, characterized in that the signal pulses are of alternative form i.e. including amplitudes of equal values but of positive and negative polarity.